

REMARKS

The Applicants request reconsideration of the rejection.

Claims 1-14 are pending.

Claims 1-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 56-30129 in view of Hatakeyama et al., US 6,007,969 (Hatakeyama). The Applicants traverse as follows:

The Office Action states that JP 56-30129 teaches a photomask manufacturing process which utilizes a radiation sensitive organic resist which, when exposed to electron beams, becomes opaque in the exposed areas. In fact, however, the "Purpose" and "Constitution" of the English-language translated Abstract indicate that the disclosed photomask manufacturing process is simplified by exposing a radiation sensitive organic resist film, which is opaque to ultraviolet rays or far ultraviolet rays, to electron beams. In other words, the resist film is already opaque to ultraviolet rays or far ultraviolet rays before being exposed to electron beams. The electron beam exposure provides a desired pattern in film 3A, which can then be developed and post-baked to produce a light shielding portion. Then, pattern printing is carried out using the ultraviolet rays or far ultraviolet rays. As a result, according to the "Constitution", the formation of a light shielding film, the etching of the film,

and the removal of the residual resist film are made unnecessary.

Of course, as noted by the Examiner, JP 56-30129 does not disclose a shade pattern containing nanoparticles which have an exposure-light-scattering characteristic which substantially restricts transmittance of exposure light through the nanoparticles. Against this limitation, the Examiner cites Hatakeyama. Hatakeyama, however, is directed to an etching mask, and not to a photomask as disclosed by JP 56-30129. The Applicants note that Hatakeyama teaches the mounting of microparticles on a glass plate; however, the Applicants submit that the mere teaching of mounting microparticles on a glass plate does not teach a photomask as disclosed in JP 56-30129. Thus, the Applicants submit that the person of ordinary skill is not motivated to combine the teachings of Hatakeyama with JP 56-30129 as asserted in the Office Action.

In addition, even if Hatakeyama is held to be combinable with JP 56-30129, the resulting mask would not contain nanoparticles in a shade pattern as claimed. Neither JP 56-30129 nor Hatakeyama teaches an opacity characteristic of the disclosed particles. Therefore, no combination of these two references leads the person of ordinary skill to the invention as claimed.

To further distinguish the claimed invention from the prior art of record, the Applicants have amended independent Claim 1 to require the shade pattern to contain, in addition to the nanoparticles and binder, a light-absorption component. As noted on page 13, lines 5-24 of the specification, including a light-absorption component in the shade pattern permits the quantity of nanoparticles to be reduced, thereby contributing to obtaining a higher resolution without sacrificing the advantages of the claimed nanoparticles. Neither JP 56-30129 nor Hatakeyama teaches or fairly suggests the inclusion of a light-absorption component as claimed. Accordingly, the prior art as applied in the Office Action does not reach the present invention.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,


Daniel J. Stanger
Registration No. 32,846
Attorney for Applicants

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Rd., Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
Date: August 25, 2004